CERES Systems Engineering Committee

Members: Maria Mitchum, NASA, DMO
Sandy Nolan, SAIC
Jill Travers, DAAC
Sue Sorlie, DAAC

Charter: Serve as a forum for resolving issues which affect more than one working group. Report to CERES Data Management Team

March 23, 1999 1:00pm

Production Database

Maria would like to use Fred Byrd's services to extend this database (which includes most of the file information relevant to production processing) to include other pertinent information necessary to production such as target PGEs, Constant files, ancillary data, etc. She has spent many hours updating several documents with essentially the same information that seems to be out of date every time a new delivery is made to the DAAC. In order to alleviate this disconnect and put 'all' file information is one location, it seems logical that all of this should reside in one database, to be maintained by CERES SAIC CM (or the Subsystem Leads) and to be to used by all of the different aspects of DAAC operations.

CERES File Information System, Objective: Database Organization

Objective:
1. Create a central location, a database, to contain **all** CERES file information
2. The file information would be maintained by the CERES developers and reside at the SCF.
3. The DAAC staff will be notified of Central DB changes and will have a mechanism to download the central DB, to update the production DB.
4. Use the DAAC's Database as a starting point for developing the Central DB.

Notes: April 6, 1999 10:00 am

It was agreed that SAIC should be responsible for populating and updating the information, that now exists, in the DAAC DB.

The following steps were agreed upon to start this effort:

1. Create a copy of the present DAAC DB and turn it over to SAIC
2. SAIC will develop their own interface techniques for accessing and changing DB information.
3. Each Subsystem Lead would be responsible for their respective PGEs' information.
4. Concentrate on the present schema and update all information to current status.
5. Download each DB Table and send to DAAC to update Production DB.

Future Enhancements:

1. Expand Database schema to include other file-related information.
2. Expand Database schema to include other PGE-related information such as:
   a. Ancillary Input and related properties
   b. Constant Input and related properties
   c. Metadata Product Specific Attributes (PSAs)
3. Create report forms for the different documents that CERES supports, for example:
   a. Operator's Manual
   b. Test Plan
4. Develop Web Based Browser for easy access of Information.
5. Future Subsets of the Central Database may be needed for non-nominal Production Requests. (For Example: An application of this would have been the runs made for Norm Loeb where the destination of the output files was changed for a specific Production Request and no new delivery of the subsystem was necessary.)

Meeting adjourned 12:15pm mvm

Notes: April 30, 1999 9:30am

This is the second 'Ceres Central File Management Database System' meeting. See the System Engineering minutes for April 6 for a full description of objectives.

Maria met at SAIC with Fred Byrd from CSC, Sharon Rodier and Dena Banks from SAIC. Carol Tolson joined the group. Sharon and Dena will be the support personnel and managers for the database system.

Since April 6, 1999 meeting:

1. Fred provided the schema and contents of the database that was in the production system at the DAAC on 4/6/99.
2. Sharon and Dena accessed and saved the DB at the SCF, provided a printed copy to Maria.
3. Maria modified the 'CERES File Management Policy' paper, dated 4/21/99, to include variable: 'SamplingStrategy', ProductionStrategy', and 'ConfigurationCode' identification defined by Subsystem for each PGE. (See 'CERES File Management Policy' and 'Semi-Automated SS, PS, and CC Implementation at LaTIS' @http://asd-www.larc.nasa.gov/ceres/intern_doc/)

Fred reported that the variable SS, PS, and CC changes must be made and verified in the Production Database before turning over the latest modified DB to SAIC. To date, the operators type in the necessary information, such as PS, CC, DataDate in order to run the Epilogue script at the DAAC. Now with the variable SamplingStrategy has been added to the file identifiers, Fred is concerned that there is too much chance for typing errors. He plan to meet with Jill Travers to discuss the possibility of using 'environment files' for Production, such as those being used by the PGEs.

Sharon and Dena will concentrate on writing the web interface for accessing the DB tables. They will also work on writing the 'output file information table' report, as is used in the Operator's Manuals.

Several items of concern were discussed:

- Single Instrument processing where more than one Instrument exists:
  When Terra is launched, there will exist 2 Satellites and 3 Instruments. It is Maria's intention for all Scripts to use a pointer, 1, or 2, or 3 used point to PFM, FM1, or FM2 in order to set up the appropriate SamplingStrategy for each PGE.
- Multi-Instrument processing (This is yet to be defined.) Fred favors a binary word with 6 digits (for the six possible Instruments in the life of CERES). Each digit would have a 1 or 0 for 'on' or 'off'.
- Some time was spent talking about the PCF file and the Database. It was decided that the PCF could NOT be built from the Database. There are just too many Toolkit requirements that the DB would not be able to provide, such as 'logical IDs', and multi-file definitions, in reverse order. It was suggested that:
  1. Each subsystem lead will prepare the changes in the DB. (According to PCF changes.)
  2. The Changes DB will be submitted to CM.
  3. CM will send the Database changes and the PCF (at SSI&T) to the DB managers.
  4. The Database managers will run a validity check of the PCF(s) and the revised DB.
  Note: Fred does this now. He will send his code to Sharon and Dena.

Meeting adjourned at 11:45am mvm

CERES File Management Database, August 6, 1999, 9:00 am

The System Engineering minutes from April 6, 1999 give the background and justification for the development of a central File Management Database (FMDB) to be maintained by the CERES Software developers at SAIC.

On August 6, Maria met with Jill, Sue, Fred Byrd, Bob Ignacio from the LaTIS DAAC, and Sharon Rodier from SAIC. One of the issues that Sharon asked about was the identification of the CERES output files. Fred pointed out that at this time his code is not able to handle multiple ProductionStrategy (ps) and ConfigurationCode (cc) in the definition of the file names, but that will be addressed as soon as possible. Sharon discussed the imminent delivery of the Subsystem 1 PGEs on August 16. It is her desire to start testing the delivery of the updated FMDB from the SAIC database.

The logistics of the FMDB delivery were discussed and it was finally decided that:

1. Each Table will be downloaded for each PGE-set of files (using the Unload command).
2. The unloaded tables will be tarred and sent in one file to CERES CM.
3. CERES CM will forward them to DAAC SSI&T.
4. DAAC will test the newly delivered set of Tables as part of the SSI&T process.

Note: that due to the uniqueness of the file_id table in the LaTIS Database, the DAAC will use a 'diff' type of update to the LaTIS Tables, to insure the DB integrity.

Once the delivery and implementation of the DB updates have been tested, then Sharon, Fred and Jill will document a more detail set of steps for their departments to follow.

The DMT to DAAC Production Request (PR) form was discussed briefly. The ideal situation would be an interactive web-based PR system which is registered directly into the LaTIS Database Production System. Fred is studying this approach. In the meantime Maria has been urged to submit the PR by PGE for each CERES Instrument with all ProductionStrategy input requirements explicitly defined.

Meeting adjourned 10:15am mvm

Maria, Bob and Fred adjourned to Fred's office to continue the discussion of Processing Requirements. Fred has built the required tables to support multiple CERES SamplingStrategies using the Instrument identifier (INST) as the key. This key will be supplied by the LaTIS operator to automatically source the Output SamplingStrategy and all required input SamplingStrategies for each PGE.

As an outgrowth of this discussion, another topic of concern was raised by Fred: the Clouds/Convolution Terra processing proposal. The Subsystem developers wish to process clouds once and convolution 2 times, once for each instrument (FM1 and FM2). There are problems foreseen if there were two separate processors, one for single instrument and one for two instruments. One draw back is that a real person (operator) would always have to make a decision for each hour of the month to make sure that both IESs are available and which PGE to run, the single or the double processor....too much hands-on requirements.

If there was only a single processor which took care of both logics, single and double instruments, this would also require hands-on operators intervention to be able to remember if both instruments or just one instrument IES(s) were available and if both had gotten processed. (Here: input a [single SamplingStrategy or two SamplingStrategies] or [single INST or double INST -such as INST = FM1 or INST = FM1+FM2].) Fred stressed that the epilogue logic that is working now will break. Fred would have to come up with special logic just for this PGE, to be able to handle one output Product-ID and 2 unique SamplingStrategies and then to have some method of knowing if he should expect one output set or two .... it gets really nasty.

Maria suggested to approach Tim and Walt to consider either clouds and convolution be separated into 2 PGEs, or the PGE that exists now be run twice, once for each Terra instrument.

Meeting adjourned 11:45am mvm